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The future of *Nomina Anatomica* – a personal view

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The Fourth Edition of *Nomina Anatomica*, recently published by Excerpta Medica, will be generally available when this article appears. Now contained in the same volume are *Nomina Embryologica* and *Nomina Histologica*, which both appear for the first time in published format, although privately printed *provisional* versions of each were available in successive revisions at the Leningrad (1970) and Tokyo (1975) International Congresses of Anatomists. It is important to recognize that these versions of *Nomina Embryologica* and *Histologica* (which were freely distributed at both Congresses) were *provisional*, and that they differ in some details from the final versions now combined in one volume with *Nomina Anatomica*.

This event marks the 27th year of the International Anatomical Nomenclature Committee's activities. Although the formation of the Committee was approved at the Fourth International Congress, held in Milan in 1936, it was not until the Fifth (first post-war) Congress, held in Oxford in 1950, that a Committee was nominated. Although the I.A.N.C. was at first concerned entirely with macroscopic structures, subcommittees for histological and embryological terminology have been active since 1960.

Several attempts to regulate anatomical terms in Latin were made during the 55 years prior to the institution of the I.A.N.C., but the results were not universally accepted. A Basle *Nomina Anatomica* (B.N.A.) was published in 1895, with revisions prepared at Birmingham (B.R.) in 1933 and Jena (J.N.A.) in 1936. The work of the I.A.N.C. was initially based upon the B.N.A. The first edition of *Nomina Anatomica* appeared in 1955.

Efforts at international regulation of anatomical terms have thus a long history. Only the *Binomial Nomenclature* of Linnaeus precedes it amongst scientific terminologies. Most biological sciences (and not merely anatomy, zoology and botany) have found it convenient and politic to use Latin – a natural development from the vogue of Latin as the international scientific language of Europe since medieval times, a usage which continued into the eighteenth century. Even in the first half of the nineteenth century bilingual scientific texts were published in European languages with a Latin translation. Moreover, Latin remained a widespread and important element of Western education (in Europe and the Americas) during the first half of the twentieth century. However, during the last two or three decades its importance has decreased rapidly in European school curricula. Furthermore, the Western disciplines of biology, including human anatomy, are now spread amongst many peoples, in the East, Middle East and Africa. To these nations Latin is largely unfamiliar and their languages contain no heritage of Latin and Greek stems, except where European words derived from these sources have been adopted.

Thus, anatomical nomenclature has been slowly elaborated by generations who were most familiar with Latin (and sometimes also ancient Greek). The elder anat-

omists of today belong to the last such generation; and it is they who have been responsible for the ultimate refinement of our current Latinized terminology, which has at last achieved, in the efforts of the I.A.N.C., a measure of international agreement. Many of the terms are old and some are even directly derived from the usages of pre-Christian anatomists. Inevitably, an aura of scholasticism, erudition and, unfortunately, pedantry has therefore often impeded attempts to rationalize and simplify anatomical nomenclature, and such obstruction still persists. The preservation of archaic terms, such as *Lien*, *Ventriculus*, *Epiploon* and *Syndesmologia*, in a world which uses and will continue to use *Splen*, *Gaster*, *Omentum* and *Arthrologia* (and their numerous derivatives), provides an example of such pedantry.

The I.A.N.C. has repeatedly declared pedantry anathema; but it continues to disdain 'late' or medieval Latin: 'cavities' are still rendered as 'caves', despite the existence of *cavitas; anulus* and *conexus* are preferred to *annulus* and *connexus*, *hilus* to *hilum* – and with such vigour that one august textbook of anatomy tried (in vain, of course) to popularize an English adjective – anular! In contrast to these and many other examples of misplaced scholastic zeal, the I.A.N.C. has decided to abolish diphthongs, without discrimination. Some must, however, remain: we still pluralize *vertebra* as *vertebrae*. But the Greek *koilos* (= coelus, whence coelom) and kēlē (= cele, whence hydro-cele) are often both rendered as 'cel', though one means 'hollow' and the other a 'tumour'. Another abolition, the extirpation of hyphens, creates a new generation of diphthongs, e.g. bulb*ou*rethralis, sacr*oi*liac, the pronunciation of which is only immediately obvious to the possessor of some Latin education.

Perhaps the anatomists should have considered the views of their elders in nomenclature, the taxonomists. The latter do not corrupt *haema* to *hema;* they use *hilum*, *connexus* and *annulus*. Are we then to accept a different orthography for the same terms in separate sciences? The botanists, perhaps the most experienced users of nomenclature, have announced long ago their emancipation from 'classical' Latin. This gives them great freedom in forming neologisms. Would *they* have perpetrated *Cellula optica conifer* for a retinal cone cell? Conocytus seems more likely, and is at least usable. Of course, the most important fact to be stated about taxonomists, whether botanical or zoological, is that they do for the most part conform to their own terminology in scientific communication. The same cannot be claimed for anatomical nomenclaturists, nor, indeed, for medical terminology in general.

Even the most cursory inspection of textbooks and scientific papers clearly shows that a large number, probably the majority, of those using anatomical terms are making little effort to conform to *Nomina Anatomica*, preferring 'unofficial' variants or their own vernacular. The truth of this statement is attested by current practice in data-retrieval systems, such as those conducted by Medlars and Excerpta Medica. However, it must be appreciated that the selection of terms by these organizations is primarily dependent upon the authors of scientific papers and the editors of the journals in which they are published. Hence, the lists of anatomical terms at present in use in data-retrieval systems are a reliable indicator of current terminological habits. The current Medlars published list of anatomical terms is largely in English (not Latin); included are more than 30 eponyms, and out-of-date terms (in English, of course) are numerous: examples are Broad Ligament, Fallopian Tube, Acoustic Nerve, 'Turbinates', etc. Even the English is sometimes unusual – e.g. 'cerebellopont*i*le' for cerebellopontine. Most of the larger parts of the body are given in broad Anglo-Saxon – e.g. Buttocks, Breast, Kidney, Thumb (and yet Hallux!),

Chin, and so forth. The Excerpta Medica list is similar. Of course, the data-retrieval classifiers cannot be regarded as culpable; they are merely copying the usages of scientific authors.

These facts must be accepted as indicating failure in international communication. This failure may be ascribed to several factors:

(*a*) A resistance in many individuals in the medical, paramedical, and biological fields in accepting changes in nomenclature, even when these clearly improve international communication.

(*b*) A preference in scientific papers and textbooks for national vernacular anatomical terms, or vernacular translation of official Latin terms.

(*c*) A resultant perpetuation of 'incorrect' (i.e. unofficial), obsolete, and eponymous terms in some national and multi-lingual medical dictionaries.

(*d*) The influence of (*a*), (*b*) and (*c*) upon data-retrieval systems, in which the prejudices and errors of authors are inevitably copied and thus perpetuated.

(*e*) A lack of appreciation, among those chiefly responsible for regulation of nomenclature, that a Latinized terminology does present difficulties to most of those who are expected to use it, whatever their native language.

The I.A.N.C. can exert no direct control over (*a*) to (*d*), but under (*e*) much could be done. We have inherited a number of archaic and now somewhat irrational terms which are confusing to the non-Latinistic students and scientists of today. For example, why do we persist in trying to enforce the term *Ventriculus* instead of the obvious *Gaster*? Everything pertaining to the 'stomach' is 'gastric'. Having accepted *Omentum majus* why do we still preserve *Arteria gastro-epiploica*? Such illogicalities are a burden to new generations of students; the majority will be confused, the more intelligent will laugh. I mention students because we must consider the future, and it is a future lacking the leisurely and scholarly approach to language of the past. And yet demands for rapid and effective international communication are greater than ever before, and hence the need for *simple*, international terminologies, sufficiently easy to be accepted *and* used by the majority of scientists. The acceptability of Latin is unchallenged; it belongs to no modern political or linguistic group. But knowledge of Latin is extremely limited today, and thus any Latin nomenclature must be simplified to the utmost to achieve maximum clarity, usefulness, and hence acceptance. Neither the I.A.N.C. nor anatomists at large have as yet made any concerted attempt to simplify terminology. There are many ways of doing this; for example, the avoidance of genitives by using adjectives, rejection of abstruse Latin stem words, elimination of lengthy expressions. It is the writer's personal conviction that unless anatomical nomenclature is subjected to a most rigorous revision, in terms of simplification and rationalisation, general use of such an internationally official nomenclature as *Nomina Anatomica* will decline rather than increase. Only a minority of anatomists currently use *Nomina Anatomica*, either in teaching or writing. If this minority is to become a majority, as it must to achieve effective international communication, Latin terminology *must* be simplified. While this is primarily the responsibility of the International Anatomical Nomenclature Committee, it is equally the responsibility of all anatomists, histologists and embryologists to recognize the current problems. Unless they assist, and indeed press, the I.A.N.C. in its efforts to improve our nomenclature and ensure its general use, the work of the last 80 years may prove fruitless. This is an *urgent* problem, because language and communication are fundamental to all anatomical teaching and research.